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What Is Claimed Is:

1. A method for operating an internal combustion engine (1), in particular of a motor vehicle, including a control unit (2) to control/regulate the internal combustion engine (1) as a function of an air-mass sensor signal (L_1) from a first air-mass sensor (HFM_1),
wherein at least one first auxiliary signal (H_1) is utilized, and the influence of an interference variable (S_X), which affects the air-mass sensor signal (L_1), on the regulation of the internal combustion engine (1) is reduced as a function of the first auxiliary signal.

2. The method as recited in Claim 1,
wherein a comparison (200) of the first auxiliary signal (H_1), or a signal derived from the first auxiliary signal (H_1), with the air-mass sensor signal (L_1), or a signal derived from the air-mass sensor signal (L_1), is performed and a comparison result (VE) is obtained.

3. The method as recited in Claim 2,
wherein, as a function of the comparison result (VE), a controlled variable (R) is obtained for the control of the internal combustion engine (1).

4. The method as recited in Claim 3,
wherein the first auxiliary signal (H_1) is obtained from state variables of the internal combustion engine (1).

5. The method as recited in one of Claims 1 through 3,
wherein the first auxiliary signal (H_1) is obtained from a signal from an exhaust-gas probe.

6. The method as recited in one of Claims 1 through 3,
wherein the first auxiliary signal (H_1) is obtained from a signal from a second air-mass sensor (HFM_2).

7. The method as recited in one of Claims 1 through 3, wherein the first auxiliary signal (H_1) is obtained from a signal from an already present rain sensor of the motor vehicle.

8. The method as recited in one of Claims 1 through 3, wherein the first auxiliary signal (H_1) is obtained from a signal of an additional sensor, the additional sensor being selected from the following group: ultrasound sensor, hot-wire air-mass sensor.

9. The method as recited in one of Claims 1 through 3, wherein the first auxiliary signal (H_1) is obtained from a signal of a capacitive sensor, the capacitive sensor being configured as integral component of the first air-mass sensor (HFM_1).

10. The method as recited in Claim 9, wherein the capacitive sensor is configured as plate capacitor having a first and a second capacitor plate, the first capacitor plate being formed by a surface of the first air-mass sensor (HFM_1).

11. The method as recited in one of Claims 1 through 3, wherein the first auxiliary signal (H_1) is obtained from a signal from an ohmic sensor, the ohmic sensor being formed as integral component of the first air-mass sensor (HFM_1).

12. The method as recited in Claim 11, wherein the ohmic sensor includes at least two electrodes preferably made of a corrosion-resistant material.

13. The method as recited in Claim 11 or 12, wherein the ohmic sensor is arranged on a surface of the first air-mass sensor (HFM_1).

14. The method as recited in one of Claims 1 through 3,

wherein the first auxiliary signal (H_1) is obtained from the signal of the capacitive sensor as recited in one of Claims 9 or 10 and from the signal of the ohmic sensor as recited in one of Claims 11 through 13.

15. The method as recited in Claim 4 or 5, wherein the comparison (200) includes the following steps: differentiating (210) the air-mass sensor signal (L_1) to obtain a differentiated air-mass sensor signal (L_1_1); differentiating (211) the first auxiliary signal (H_1) to obtain a differentiated auxiliary signal (H_1_1); and forming the difference (220) from the differentiated air-mass sensor signal (L_1_1) and the differentiated auxiliary signal (H_1_1) to obtain a differential signal (D_1_1).

16. The method as recited in Claim 15, characterized by the following steps: scaling (210a) of the differentiated air-mass sensor signal (L_1_1) to a time average (L_1_m) of the air-mass sensor signal (L_1), and scaling (211a) of the differentiated auxiliary signal (H_1_1) to a time average (H_1_m) of the first auxiliary signal (H_1).

17. The method as recited in Claim 15 or 16, characterized by the following step: forming (230) the amount of the differential signal (D_1_1) to obtain a positive differential signal (D_1_1').

18. The method as recited in one of Claims 15 through 17, characterized by the following steps: filtering (240) of the differential signal (D_1_1) / the positive differential signal (D_1_1') to obtain a filtered differential signal (D_1_1*).

19. The method as recited in one of Claims 15 through 18, characterized by the following step: comparing (250) the differential signal (D_1_1) / the filtered differential signal (D_1_1*) / the positive differential signal (D_1_1') with at least one predefinable threshold value (S_1).

20. The method as recited in Claim 19,
wherein the first auxiliary signal (H_1) is obtained as controlled variable (R) if the comparison result (VE) indicates that the differential signal (D_1_1) / the filtered differential signal (D_1_1*) is greater / smaller than the first threshold value (S_1) / a second threshold value (S_2); and the air-mass sensor signal (L_1) is obtained as controlled variable (R) if the comparison result (VE) indicates that the differential signal (D_1_1) / the filtered differential signal (D_1_1*) is smaller than or equal to / greater than or equal to the first threshold value (S_1) / the second threshold value (S_2).

21. The method as recited in Claim 19,
wherein the first auxiliary signal (H_1) is obtained as controlled variable (R) if the comparison result (VE) indicates that the positive differential signal (D_1_1') / the filtered differential signal (D_1_1*) is greater than the first threshold value (S_1), and the air-mass sensor signal (L_1) is obtained as controlled variable (R) if the comparison result (VE) indicates that the positive differential signal (D_1_1') / the filtered differential signal (D_1_1*) is smaller than or equal to the first threshold value (S_1).

22. The method as recited in Claim 4,
wherein the comparison (200) includes the following steps: forming the difference (380) from the first auxiliary signal (H_1) and the air-mass sensor signal (L_1) to obtain the controlled variable (R).

23. The method as recited in Claim 22,
characterized by the following step: filtering (340) of the air-mass sensor signal (L_1) prior to forming the difference (380) to obtain a filtered air-mass sensor signal (L_1*).

24. The method as recited in Claim 23,
wherein a low-pass filter (340a) is used for the filtering

(340).

25. The method as recited in Claim 24, wherein the cut-off frequency of the low-pass filter (340a) is selected dynamically and as a function of state variables of the internal combustion engine (1).

26. The method as recited in Claim 25, wherein the cut-off frequency of the low-pass filter (340a) is selected as a function of a model of the internal combustion engine.

27. The method as recited in Claim 1, wherein the first auxiliary signal (H_1) is obtained by filtering (440) with a high-pass filter (440a) from the air-mass sensor signal (L_1) and is used as a controlled variable (R) to control the internal combustion engine (1).

28. The method as recited in Claim 27, wherein the cut-off frequency of the high-pass filter (440a) is selected dynamically.

29. The method as recited in Claim 28, wherein the cut-off frequency of the high pass filter (440a) is selected as a function of state variables of the internal combustion engine (1).

30. The method as recited in one of Claims 27 through 29, wherein a second auxiliary signal (H_2) is obtained by filtering (442) with a low pass filter (442a) from the air-mass sensor signal (L_1), and the controlled variable (R) is obtained from the first auxiliary signal (H_1), the second auxiliary signal (H_2) and state variables of the internal combustion engine (1).

31. The method as recited in Claim 30, wherein the cut-off frequency of the low pass filter (442a)

is selected dynamically.

32. The method as recited in Claim 31, wherein the cut-off frequency of the low pass filter (442a) is selected as a function of state variables of the internal combustion engine (1).

33. The method as recited in Claim 29 or 32, wherein the cut-off frequency of the high pass filter (440a) / low pass filter (442a) is selected as a function of a model of the internal combustion engine (1).

34. The method as recited in Claim 6, wherein both air-mass sensors (HFM_1, HFM_2) are arranged in an intake manifold (4) of the internal combustion engine (1) in such a way that air flowing into the intake manifold (4) first reaches the first air-mass sensor (HFM_1) and then the second air-mass sensor (HFM_2), which is arranged with a clearance (D) in the flow direction of the aspirated air, and the comparison (200) includes the following steps: delaying (510) the air-mass sensor signal (L_1) by a delay time (delta_T) to obtain a delayed air-mass sensor signal (L_1_delta_T); subtracting (520) the first auxiliary signal (H_1) from the delayed air-mass sensor signal (L_1_delta_T) to obtain a differential signal (D_L_H); integrating (530) the differential signal (D_L_H) to obtain an indicator signal (A_L_H); differentiating (540) the delayed air-mass sensor signal (L_1_delta_T) to obtain a differentiated air-mass sensor signal (L_1_delta_T_1); forming (541) the amount of the differentiated air-mass sensor signal (L_1_delta_T_1) to obtain a positive air-mass sensor signal (L_1_delta_T_1'); differentiating (542) the first auxiliary signal (H_1) to obtain a differentiated auxiliary signal (H1_1); forming (543) the amount of the differentiated auxiliary signal (H1_1) to obtain a positive auxiliary signal (H1_1'); subtracting (560) the positive auxiliary signal (H1_1') from the positive air-mass sensor signal (L_1_delta_T_1') to obtain a further

differential signal (Z_Diff).

35. The method as recited in Claim 34, characterized by the following steps: Comparing (570) the indicator signal (A_L_H) with at least one threshold value if the indicator signal (A_L_H) exceeds a threshold value: obtaining (580) the controlled variable (R) from the first auxiliary signal (H_1) and the indicator signal (A_L_H) if the differential signal (Z_Diff) is positive; obtaining (581) the controlled variable (R) from the air-mass sensor signal (L_1) and the indicator signal (A_L_H) if the differential signal (Z_Diff) is negative.

36. The method as recited in Claim 34 or 35, wherein both air-mass sensors (HFM_1, HFM_2) are arranged side-by-side; the delay step (510) is omitted; and the second air-mass sensor (HFM_2) is provided with a water-droplet separator.

37. The method as recited in Claim 36, wherein a model simulating the dynamic response of the water-droplet separator is taken into account in the processing of the air-mass sensor signal (L_1) and/or the first auxiliary signal (H_1).

38. The method as recited in one of Claims 34 through 37, wherein both air-mass sensors (HFM_1, HFM_2) are integrated in a shared sensor system, preferably in a shared housing.

39. The method as recited in one of Claims 7 through 14, characterized by the following steps: Deriving the interference variable (S_X) from the first auxiliary signal (H_1); obtaining the controlled variable (R) as a function of the interference variable (S_X).

40. The method as recited in one of the preceding claims,

wherein the first air-mass sensor (HFM_1) is configured as hot-film air-mass sensor.

41. A computer program for a control unit of an internal combustion engine of a motor vehicle, in particular, having a program code which is suitable for executing the method as recited in one of Claims 1 through 40 when it is run on a computer.

42. The computer program as recited in Claim 41, the program being stored on a computer-readable data carrier.

43. An internal combustion engine (1), in particular for a motor vehicle, having a control unit (2) for controlling/regulating the internal combustion engine (1) as a function of an air-mass sensor signal (L_1) from a first air-mass sensor (HFM_1),
wherein at least one first auxiliary signal (H_1) is provided to reduce the influence of an interference variable (S_X), which affects the air-mass sensor signal (L_1), on the regulation of the internal combustion engine (1).

44. A control unit (2) for an internal combustion engine (1), in particular of a motor vehicle, for the control/regulation of the internal combustion engine (1) as a function of an air-mass sensor signal (L_1) from a first air-mass sensor (HFM_1),
wherein at least one first auxiliary signal (H_1) is provided to reduce the influence of an interference variable (S_X), which affects the air-mass sensor signal (L_1), on the regulation of the internal combustion engine (1).